CHAPTER 3
OPERATOR MAINTENANCE INSTRUCTIONS

SECTION I. TROUBLESHOOTING

3.1 TROUBLESHOOTING PROCEDURES.

Following are troubleshooting procedures for problems which may be encountered with the MILES 2000 Independent Target System (ITS) configuration. Operator troubleshooting procedures involve identifying a problem and isolating the problem to the most likely piece(s) of equipment. Generally the BIT run by the Control Unit (CU) identifies most problems within the system, and produces an error message to let the user know that there is a problem. Table 3-1 lists the error messages that are available; the MILES 2000 equipment malfunction most likely to cause the error message; and the appropriate action to take to correct the problem. You may notice that much of the time, the corrective action to be taken to resolve a problem is to remove the malfunctioning equipment and replace it with equipment that is working. This is because the MILES 2000 equipment is designed to need only limited maintenance at the operator and/or unit level. When the removal and replacement of equipment can be efficiently expedited, 'down time' can be cut dramatically and participants can quickly return to the mission scenario, allowing them to receive maximum benefit from training. Removal and replacement procedures are located in this chapter in Section II, Operator Maintenance.

WARNING

To prevent personal injury, turn all system power off, including the CU, before conducting any removal/replacement procedures.

You may encounter equipment problems not addressed in this section. If this is the case, notify the appropriate personnel (a supervisor and/or higher echelon maintenance personnel) as soon as possible.

Table 3-1. MILES 2000 Troubleshooting Chart for ITS Configuration.

PROBLEM	PROBABLE CAUSE (S)	ACTION
No power to MILES 2000 - No LEDs lighted on Power Controller.	Connection from system cable not secures or connectors damaged.	Check system cable connection at Power Controller. Tighten if loose. Ensure connector is not damaged, and that there is no debris or foreign objects in connector. Check system cable connection to vehicle slave receptacle. Tighten if loose. Ensure connector is not damaged, and there is no debris or foreign objects in connector.
	Power Controller	Check Power Controller. If no LEDs lighted, remove and replace Power Controller.
	System Cable	If problem still exists, remove and replace system cable. If problem still exists, refer problem to higher echelon maintenance.
BATTERY POWER LOW LED lighted on Power Controller.	Batteries not fully charged.	Crank up vehicle and run for at least 20 minutes to charge PCU . If light is still present then remove and replace Power Controller.
Control Unit (CU) Memory	CU	Remove and replace.
CU	CU	Remove and replace.
CU Voice	CU	Remove and replace.
CU Display	CU	Remove and replace.
NVRAM	CU	Remove and replace.
No Kill Status Indicator (KSI) Commo	KSI	Check connections; Retest. If error is repeated, remove and replace.

Table 3-1. MILES 2000 Troubleshooting Chart for ITS Configuration-Continued.

BIT FAILURES	PROBABLE CAUSE (S)	ACTION
KSI Memory	KSI	Remove and replace.
Strobe	KSI	Check connections; Retest. If error is repeated, remove and replace.
Belt/Amplifier	Detector Array or amplifier on Detector Array.	Check Detector Array/system cable connection; Retest; If error is repeated, remove and replace Detector Array.

SECTION II. OPERATOR MAINTENANCE

3.2 OPERATOR MAINTENANCE PROCEDURES.

Much of the operator maintenance for the MILES 2000 equipment consists of removing the defective item and replacing it with functioning equipment. Remove/Replace procedures for the Independent Target System (ITS) configuration are described in the following:

WARNING

To prevent personal injury, turn all system power off, including the CU, before conducting any removal and/or replacement procedures.

3.2.1 Remove/Replace Procedures. Before conducting any remove/replace procedures, turn all power OFF to avoid personal injury.

3.2.1.1 Detector Array Removal.

a. Disconnect the System Cable from the Detector Array connector.

b. Working with short sections, detach the Detector Array from the fastener tape on the vehicle. Work carefully, so that no electronics or wiring are damaged during removal.

c. Clean equipment and prepare for turn in.

3.2.1.2 Detector Array Replacement.

a. Working in short sections, press the Detector Array against the fastener tape. Work carefully, so that no electronics or wiring are damaged during replacement.

b. Once the Detector Array is installed, attach the System Cable connector to the Detector Array connector.

c. Safely secure cables using fastener tape or fastener tape tie-wraps.

3.2.1.3 Kill Status Indicator Removal. Use the appropriate paragraph for the type of KSI configuration. Paragraph a. covers the plate removal, and paragraph b. covers the mast removal.

a. Plate removal:

(1) Disconnect the System Cable from the KSI connector.

(2) Disengage the rubber latches on the mounting adapter/plate from the latching bracket on the KSI.

(3) Carefully detach the KSI from the mounting plate's fastener tape, taking care not to damage the equipment.

(4) Clean equipment and prepare for turn in.

b. Mast removal:

(1) Disconnect the System Cable from the KSI connector.

(2) Disengage the rubber latches on the mast assembly from the latching brackets on the KSI.

(3) Carefully detach the KSI from the fastener tape, taking care not to damage the equipment.

(4) Clean equipment and prepare for turn in.

3.2.1.4 Kill Status Indicator Replacement. Paragraph a. below covers plate attachment of the KSI and paragraph b. on the following page, covers mast attachment of the KSI.

a. Plate attachment:

(1) Inspect the strobe for cracks and the connector for dirt, and bent or damaged pins.

(2) Apply primer and two (2) large strips of pile fastener tape to the bottom of the KSI, if needed.

(3) Attach the fastener tape on the KSI to the mounting site on the vehicle/structural configuration. Ensure the KSI is securely mounted.

(4) Connect the System Cable to the KSI connector.

b. Mast attachment:

(1) Inspect strobe for cracks and the connector for dirt, and bent or damaged pins.

(2) Apply primer and two (2) large strips of pile fastener tape to the bottom of the KSI, if needed (ensuring the center bolt is not obstructed).

NOTE

For the following step, make sure the KSI and the mast assembly are lined up as described before placing them together, as the fastener tape will make it difficult to separate the units to realign them.

(3) After matching the center bolt with the mounting hole, making sure the four (4) rubber latches on the mast are in line with the four (4) latching brackets on the KSI, place the KSI securely on the mast.

(4) Pull each rubber latch up and over its latching bracket.

(5) Apply primer and fastener tape to the bottom of the mast, if needed.

(6) Apply primer and fastener tape to a stable area on the truck where the KSI will have 360°clearance. (Locations will vary with different truck configurations.)

(7) Attach the mast to a stable area of the truck. Ensure the KSI and mast are securely mounted.

(8) Connect the System Cable to the KSI connector.

3.2.1.5 Control Unit (CU) Removal.

a. Disconnect the System Cable from the CU.

b. Detach the CU from the vehicle/structure, taking care not to damage the equipment.

c. Clean the equipment and prepare for turn in.

3.2.1.6 Control Unit (CU) Replacement.

a. Apply fastener tape to the CU if there is none attached.

b. Mount the CU to the fastener tape on the vehicle/structure.

c. Connect the system cable to the CU connector.

3.2.1.7 Power Controller Removal.

a. Disconnect the System Cable from the Power Controller.

b. Detach the Power Controller from the fastener tape on the vehicle/structure, taking care not to damage the equipment.

c. Clean the equipment and prepare for turn in.

3.2.1.8 Power Controller Replacement.

a. Apply fastener tape to the bottom of the Power Controller if there is none attached.

b. Attach the Power Controller to the fastener tape on the vehicle/structure.

c. Connect the System Cable to the Power Controller.

3.2.1.9 System Cable Removal.

a. Disconnect cable from all units and other cables.

b. Detach the fastener tape securing the cable to the vehicle/structure.

c. Remove the cable, taking care not to damage the cable or connectors.

d. Clean the cable and prepare for turn in.

3.2.1.10 System Cable Replacement.

a. Replace the cable using the instructions in Chapter 2, Section III, for the applicable vehicle/structure.

b. Secure the cable to the vehicle/structure, using the existing fastener tape or fastener tape tie-wraps.

3.3 MILES 2000 EQUIPMENT DISASSEMBLY PROCEDURES.

Perform the following procedures to remove and store the ITS equipment. Always ensure that all power to the equipment is off before disassembly.

WARNING

To prevent personal injury, turn all system power off, including the CU, before conducting any removal and/or replacement procedures.

a. Disconnect System Cable and remove it and all MILES 2000 equipment in accordance with the removal procedures in paragraph 3.2.

b. Remove batteries from applicable equipment.

c. Clean and inspect equipment. If there is any damage to the equipment, report damage on the appropriate form (a separate form for each piece of equipment), and turn in with damaged equipment.

d. Place equipment and System Cable(s) in the Transit Case.

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MILES 2000 TROUBLESHOOTING
Vehicle System

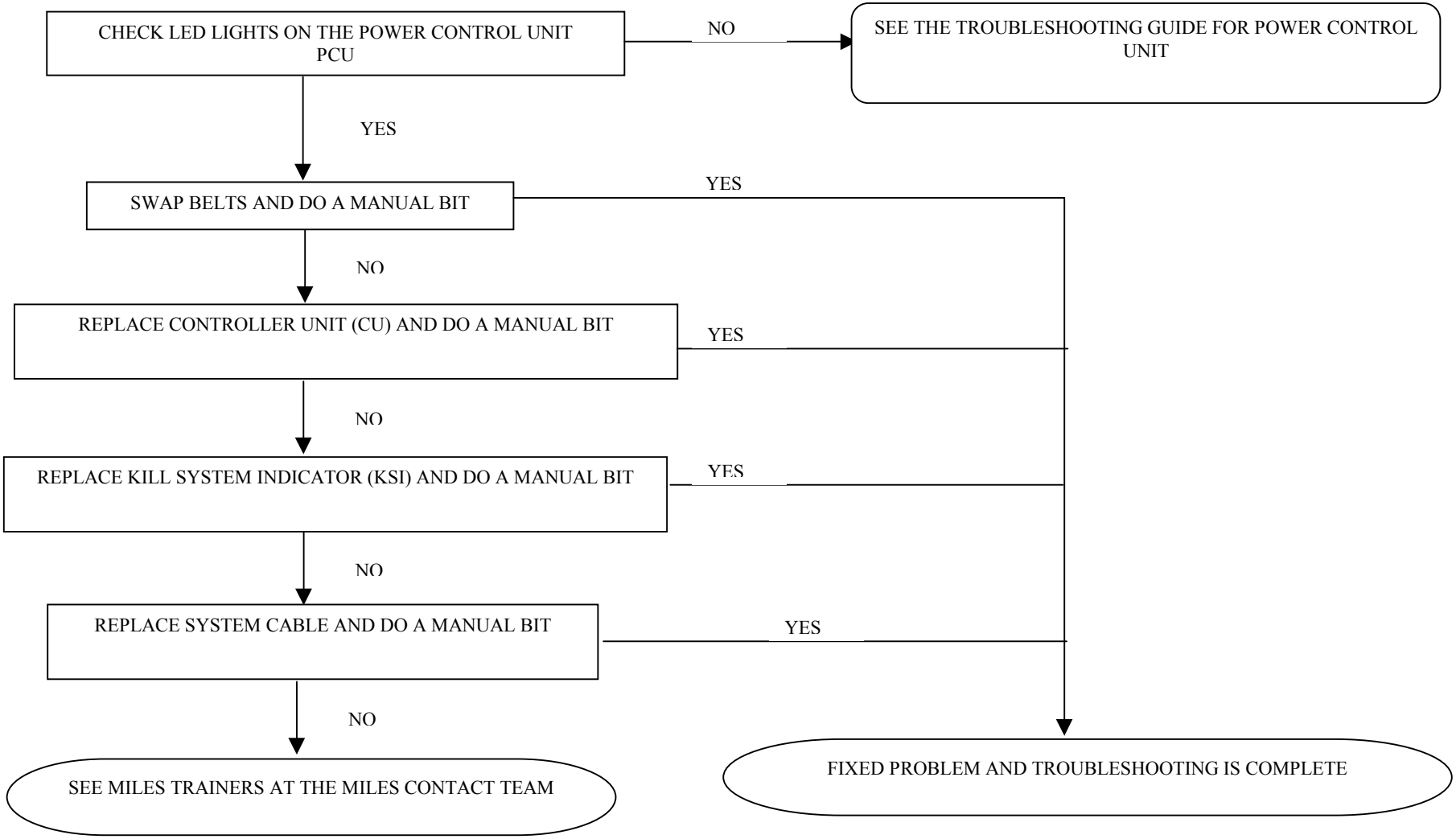
NOTE: SAFETY IS ALWAYS FIRST

- ALWAYS ENSURE THAT ALL POWER IS OFF PRIOR TO INSTALLATION, UNINSTALLATION, AND DURING TROUBLESHOOTING.

- ALWAYS CHECK CABLE CONNECTION SERVICEABILITY AND TIGHTNESS.

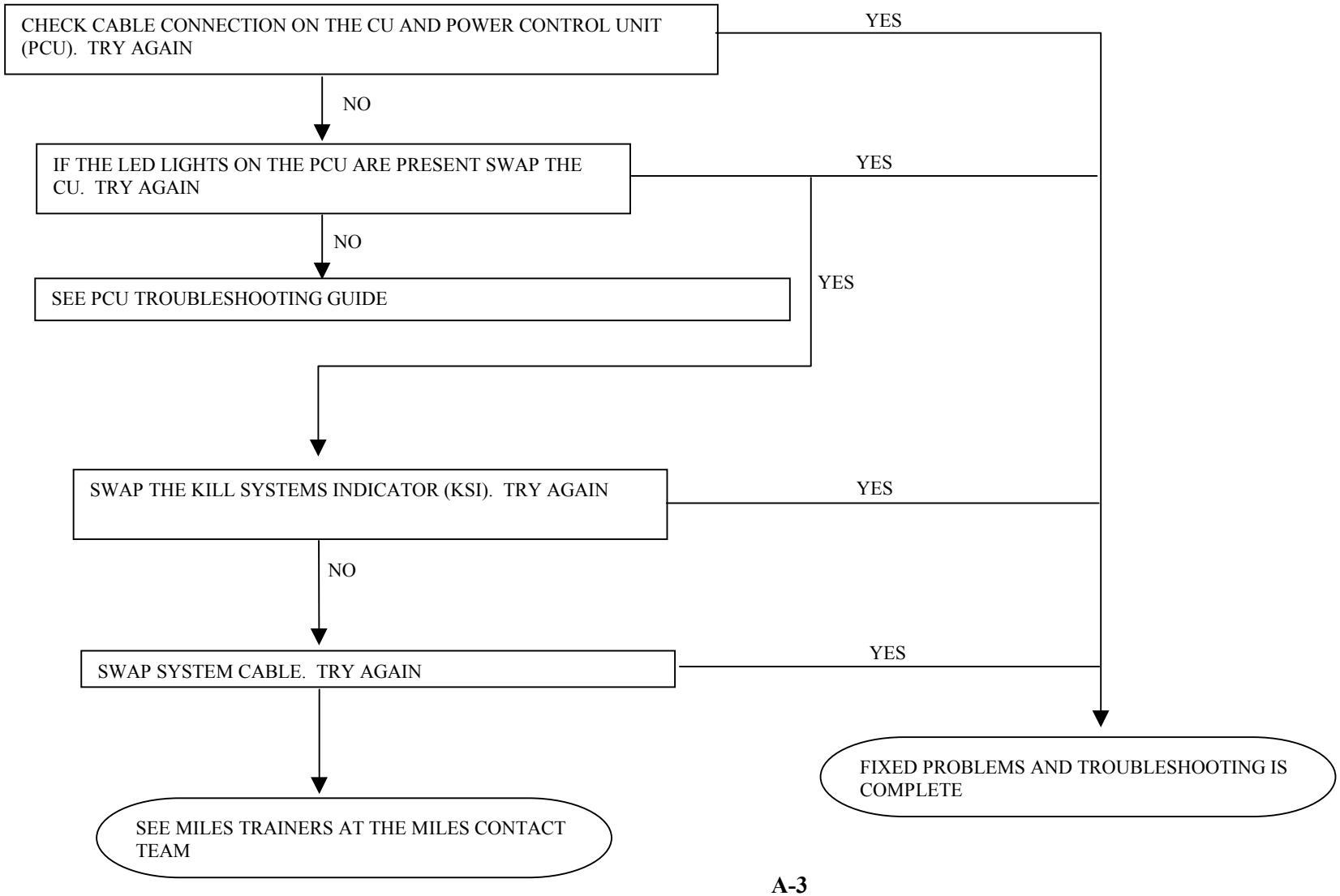
MILES 2000 TROUBLESHOOTING
Vehicle System

Belts/ Detector Array



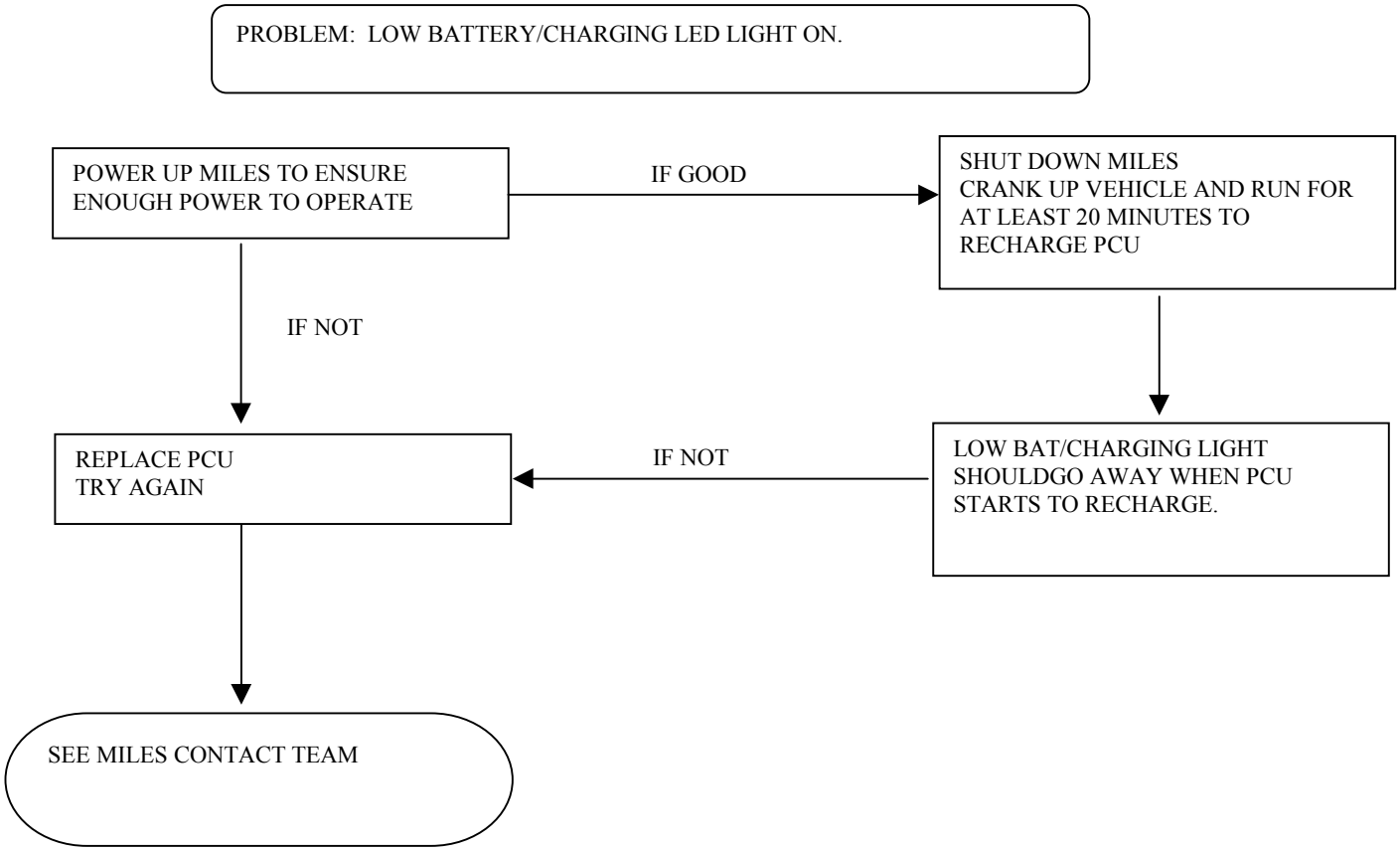
MILES 2000 TROUBLESHOOTING
Vehicle System

CU



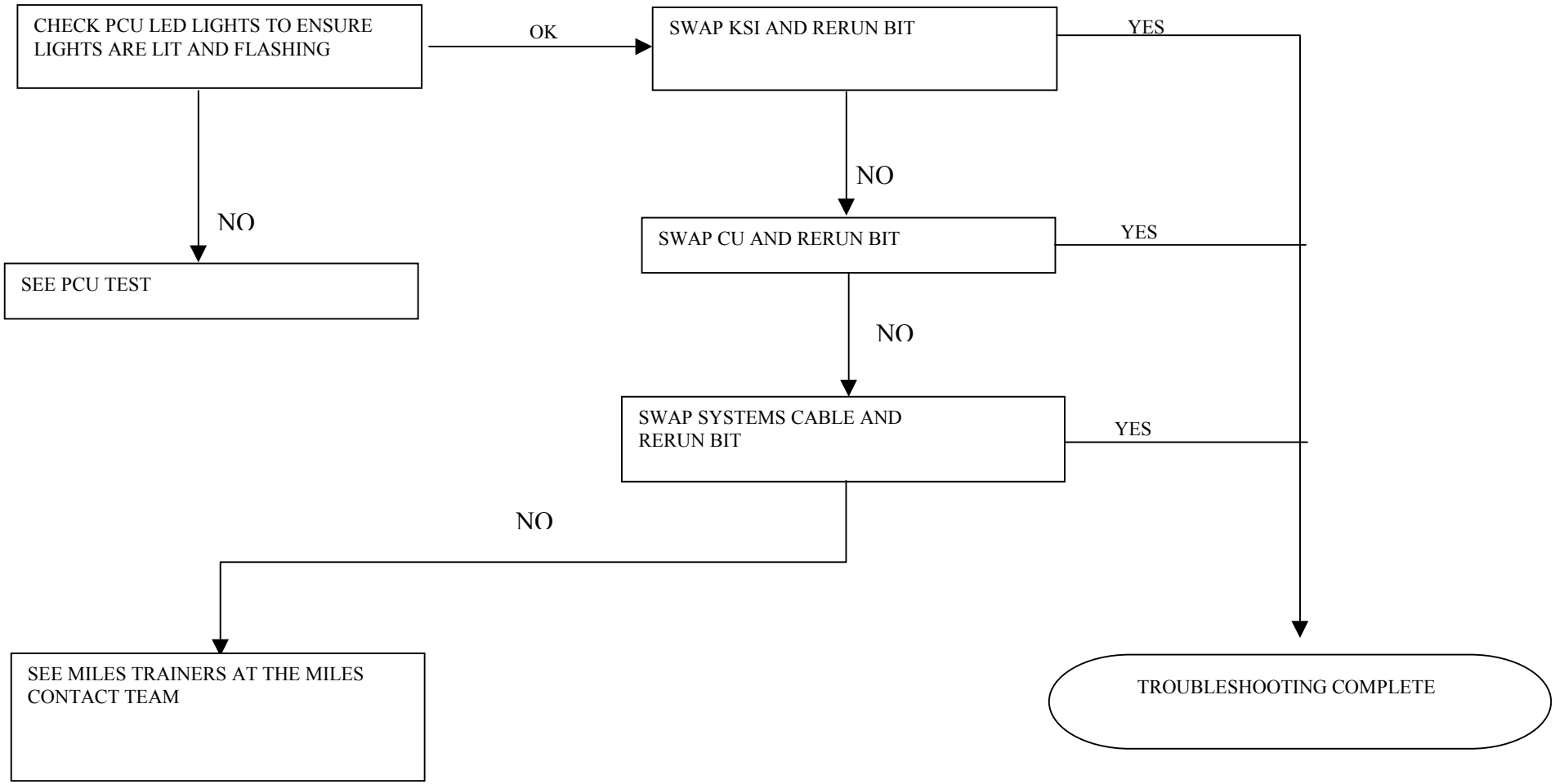
MILES 2000 TROUBLESHOOTING
Vehicle System

PCU



MILES 2000 TROUBLESHOOTING
Vehicle System

Vehicle System
KSI



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